DYNAMICALLY CONTROLLING DATA MIGRATION

TECHNICAL FIELD

[0001] The present invention relates generally to organization migrations, and in particular, to dynamic flow control of a migration based on predicted impact the migration may have on a contemporaneous operation or service.

BACKGROUND

[0002] A large-scale cloud-based computer system may include multiple datacenters at various geographic locations to maintain millions of sets of application data for millions of organizations as well as provide millions of sets of application services such as those for customer relationship management, secured data access, online transaction processing, mobile apps, etc., to respective users and/or customers of these organizations. As datacenters grow and evolve over time, and as computing resource needs for the organizations evolve over time (e.g., a need for faster resources, or geographic needs change), some organizations may be migrated or relocated between computing instances of a same datacenter and/or different datacenters.

[0003] Organization migration may be manually performed with human supervision by, e.g., experts experienced in various aspects relating to migrating application data and application services in the data centers. However, for some organizations, a migration may represent an enormous resource cost in expert time and availability, rendering human supervision inefficient, error prone, and ultimately risking migration failure(s). Automation may be employed to automatically migrate an organization, however migration may interfere with other ongoing operations, for example, the Data Guard service which creates a copy (exact or logical) of a database.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The present invention is illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings and in which like reference numerals refer to similar elements and in which:

[0005] FIG. **1**A shows a block diagram of an example environment in which an on-demand database service can be used according to some implementations.

[0006] FIG. **1**B shows a block diagram of example implementations of elements of FIG. **1**A and example interconnections between these elements according to some implementations.

[0007] FIG. **2** illustrates exemplary pseudo-code, according to one embodiment, for setting a traffic light status based on an apply lag prediction.

[0008] FIG. **3** illustrates exemplary pseudo-code according to one embodiment.

[0009] FIG. **4** illustrates a flowchart according to one embodiment.

[0010] FIG. **5** illustrates an exemplary hardware environment according to one embodiment.

DETAILED DESCRIPTION

[0011] The following detailed description discusses multiple exemplary embodiments for more efficiently migrating an organization. It will be appreciated while various alternatives are disclosed, they are approaches that may be pursued, but none are approaches that necessarily must be used. In addition, while issues with solutions may be identified with respect to one or more exemplary approaches described herein, none should be assumed to have been recognized in any prior art on the basis of being identified as a known issue. In this description, for the purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, the present invention may be practiced without these specific details. In other instances, well-known structures and devices are not described in exhaustive detail, in order to avoid unnecessarily occluding, obscuring, or obfuscating the present invention.

[0012] Examples of systems, apparatus, computer-readable storage media, and methods according to the disclosed implementations are described in this section. These examples are being provided solely to add context and aid in the understanding of the disclosed implementations. It will thus be apparent to one skilled in the art that the disclosed implementations may be practiced without some or all of the specific details provided. In other instances, certain process or method operations also referred to herein as "blocks," have not been described in detail in order to avoid unnecessarily obscuring the disclosed implementations. Other implementations and applications also are possible, and as such, the following examples should not be taken as definitive or limiting either in scope or setting.

[0013] In the following detailed description, references are made to the accompanying drawings, which form a part of the description and in which are shown, by way of illustration, specific implementations. Although these disclosed implementations are described in sufficient detail to enable one skilled in the art to practice the implementations, it is to be understood that these examples are not limiting, such that other implementations may be used and changes may be made to the disclosed implementations without departing from their spirit and scope. For example, the blocks of the methods shown and described herein are not necessarily performed in the order indicated in some other implementations. Additionally, in some other implementations, the disclosed methods may include more or fewer blocks than are described. As another example, some blocks described herein as separate blocks may be combined in some other implementations. Conversely, what may be described herein as a single block may be implemented in multiple blocks in some other implementations. Additionally, the conjunction "or" is intended herein in the inclusive sense where appropriate unless otherwise indicated; that is, the phrase "A, B or C" is intended to include the possibilities of "A," "B," "C," "A and B," "B and C," "A and C" and "A, B and C."

[0014] The following is a brief overview of selected features of various embodiments. This overview is not an extensive summary of the invention or claimed embodiments, is not intended to identify particularly significant aspects of disclosed embodiments, and does not delineate any particular scope of the invention. This overview merely presents some concepts that may facilitate, in a condensed and simplified format, understanding more detailed description below and appreciate the breadth of the claimed embodiments.

[0015] If we assume a first primary database is being migrated to a second primary database, and both databases are protected by a service such as Data Guard, to minimize